

SEQUENCE LISTING

<110> Cobb, Melanie
Hutchison, Michele
Chen, Zhu
Berman, Kevin

<120> TAO PROTEIN KINASE POLYPEPTIDES AND
METHODS OF USE THEREFOR

<130> 860098.421C1

<150> .09/060,410

<151> 1998-04-14

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Glu Leu Phe Phe Lys Glu Asp Pro Glu Lys Leu Phe Thr Asp Leu Arg	
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Glu Ile Gly His Gly Ser Phe Gly Ala Val Tyr Phe Ala Arg Asp Val	
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Arg Thr Asn Glu Val Val Ala Ile Lys Lys Met Ser Tyr Ser Gly Lys	
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Gln Ser Thr Glu Lys Trp Gln Asp Ile Ile Lys Glu Val Lys Phe Leu	
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Gln Arg Ile Lys His Pro Asn Ser Ile Glu Tyr Lys Gly Cys Tyr Leu	
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cat acc atg atc cat aga gat atc His Thr Met Ile His Arg Asp Ile 145	aaa gca gga aat atc ctt ctg aca Lys Ala Gly Asn Ile Leu Leu Thr 150		600
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gta att tta gcc atg gat gaa gga Val Ile Leu Ala Met Asp Glu Gly 195	caa tat gat ggc aaa gtt gat gta Gln Tyr Asp Gly Lys Val Asp Val 200		744
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Ser Ile Pro Ser Met Ser Ile Ser Ala Ser Ser Gln Ser Ser Ser Val	
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Asn Ser Leu Pro Asp Ala Ser Asp Asp Lys Ser Glu Leu Asp Met Met	
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Glu Gly Asp His Thr Val Met Ser Asn Ser Ser Val Ile His Leu Lys	
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Pro Glu Glu Glu Asn Tyr Gln Glu Glu Gly Asp Pro Arg Thr Arg Ala	
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Ser Ala Pro Gln Ser Pro Pro Gln Val Ser Arg His Lys Ser His Tyr	
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Arg Asn Arg Glu His Phe Ala Thr Ile Arg Thr Ala Ser Leu Val Thr	
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Arg Gln Met Gln Glu His Glu Gln Asp Ser Glu Leu Arg Glu Gln Met	
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Ser Gly Tyr Lys Arg Met Arg Arg Gln His Gln Lys Gln Leu Met Thr	
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Asp Lys Asp Leu Glu Thr Gln Arg Asn Asn Phe Ala Ala Glu Met Glu	
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Lys Leu Ile Lys Lys His Gln Ala Ser Met Glu Lys Glu Ala Lys Val	
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Met Ala Asn Glu Glu Lys Lys Phe Gln Gln His Ile Gln Ala Gln Gln	
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gtc	atg	gaa	gtt	cga	cag	cag	cct	aag	agt	ttg	aag	tct	aaa	gaa	ctc		2280			
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Tyr	Lys	Ala	Leu	Arg	Asn	His	Leu	Leu	Glu	Thr	Thr	Pro	Lys	Ser	Glu					
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cac	aaa	gct	gtt	ctg	aaa	aga	ctc	aag	gag	gaa	cag	act	cgg	aag	tta		2424			
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gcc	atc	ttg	gct	gag	cag	tat	gat	cat	agc	att	aat	gaa	atg	ctc	tcc		2472			
Ala	Ile	Leu	Ala	Glu	Gln	Tyr	Asp	His	Ser	Ile	Asn	Glu	Met	Leu	Ser					
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agc aaa atc aag atg cag gct gag gcc caa cat gat cga gag ctt cga	2616
Ser Lys Ile Lys Met Gln Ala Glu Ala Gln His Asp Arg Glu Leu Arg	
820 825 830	
gag ctg gaa caa agg gtc tcc ctt cgg aga gca ctc tta gaa cag aag	2664
Glu Leu Glu Gln Arg Val Ser Leu Arg Arg Ala Leu Leu Glu Gln Lys	
835 840 845	
att gaa gaa gag atg ttg gct ttg cag aat gaa cgc aca gaa cga ata	2712
Ile Glu Glu Glu Met Leu Ala Leu Gln Asn Glu Arg Thr Glu Arg Ile	
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Glu Ser Met Arg Leu Gly Phe Ser Asn Met Val Leu Ser Asn Leu Ser	
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Pro Glu Ala Phe Ser His Ser Tyr Pro Gly Ala Ser Ser Trp Ser His	
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Asn Pro Thr Gly Gly Ser Gly Pro His Trp Gly His Pro Met Gly Gly	
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Gly His Pro Ser Gly Pro Met Gln Gly Val Pro Arg Gly Ser Ser Ile	
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Gly Val Arg Asn Ser Pro Gln Ala Leu Arg Arg Thr Ala Ser Gly Gly	
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<212> PRT

<213> Rattus norvegicus

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Glu	Pro	Gly	Gln	Val	Lys	Leu	Ala	Asp	Phe	Gly	Ser	Ala	Ser	Met	Ala
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Ser	Ala	Pro	Gln	Ser	Pro	Pro	Gln	Val	Ser	Arg	His	Lys	Ser	His	Tyr
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Val	Met	Glu	Val	Arg	Gln	Gln	Pro	Lys	Ser	Leu	Lys	Ser	Lys	Glu	Leu
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Leu 210	Gly	Ile	Met	Ile	Ile	Glu 215	Met	Ile	Glu	Gly	Glu 220	Pro	Pro	Tyr	Leu	
Asn 225	Glu	Thr	Pro	Leu	Arg 230	Ala	Leu	Tyr	Leu	Ile 235	Ala	Thr	Asn	Gly	Thr 240	
Pro	Lys	Leu	Lys 245	Glu	Pro	Glu	Asn	Leu 250	Ser	Ser	Ser	Leu	Lys 255	Lys	Phe	
Leu	Asp	Trp	Cys 260	Leu	Cys	Cys	Val 265	Glu	Pro	Glu	Asp	Arg	Ala 270	Ser	Ala	
Thr																

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60

33

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21

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28

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30

61

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[illegible]

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Asn Lys Asp Pro Glu Gln Arg Tyr Gln Asp Leu Arg Glu Ile Gly His
25 30 35

62

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act gtt gcg att aaa aag atg aat ttt agt gga aaa cag gct gtc gaa Thr Val Ala Ile Lys Lys Met Asn Phe Ser Gly Lys Gln Ala Val Glu 55 60 65 70	488
aaa tgg aat gat att ctt aaa gaa gtg tct ttt ctg aat aca gtt gtt Lys Trp Asn Asp Ile Leu Lys Glu Val Ser Phe Leu Asn Thr Val Val 75 80 85	536
cat cca cat att gtc gac tac aag gct tgt ttt ctt aag gac act aca His Pro His Ile Val Asp Tyr Lys Ala Cys Phe Leu Lys Asp Thr Thr 90 95 100	584
tgt tgg ctt gtg atg gag tac tgt att ggc tct gca gcc gat ata gtg Cys Trp Leu Val Met Glu Tyr Cys Ile Gly Ser Ala Ala Asp Ile Val 105 110 115	632
gat gtc ttg cga aaa gga atg cga gaa gtc gaa atc gct gcg att tgc Asp Val Leu Arg Lys Gly Met Arg Glu Val Glu Ile Ala Ala Ile Cys 120 125 130	680
tct caa act ttg gat gct ctt cga tat ctt cac tct ctg aag cga ata Ser Gln Thr Leu Asp Ala Leu Arg Tyr Leu His Ser Leu Lys Arg Ile 135 140 145 150	728
cat cga gat att aaa gct gga aat att ctg cta tct gat cat gct att His Arg Asp Ile Lys Ala Gly Asn Ile Leu Leu Ser Asp His Ala Ile 155 160 165	776
gtt aaa cta gct gat ttc gga tcc gca tcc ctg gta gat ccg gct caa Val Lys Leu Ala Asp Phe Gly Ser Ala Ser Leu Val Asp Pro Ala Gln 170 175 180	824
act ttc atc gga acg ccg ttt ttc atg gcc cca gag gta att ctg gca Thr Phe Ile Gly Thr Pro Phe Phe Met Ala Pro Glu Val Ile Leu Ala 185 190 195	872
atg gat gag ggt cac tac acg gat cgt gca gat att tgg tca ttg ggt Met Asp Glu Gly His Tyr Thr Asp Arg Ala Asp Ile Trp Ser Leu Gly 200 205 210	920
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aat gca atg tct gcc ctg tac cat att gct caa aat gat cct cca act Asn Ala Met Ser Ala Leu Tyr His Ile Ala Gln Asn Asp Pro Pro Thr 235 240 245	1016
ctt tct cca att gac act agc gaa caa ccg gaa tgg tcg ctg gaa ttc Leu Ser Pro Ile Asp Thr Ser Glu Gln Pro Glu Trp Ser Leu Glu Phe 250 255 260	1064
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Val	Gln	Phe	Ile	Asp	Lys	Cys	Leu	Arg	Lys	Pro	Ala	Glu	Glu	Arg	Met	
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Ser	Ala	Glu	Glu	Cys	Phe	Arg	His	Pro	Phe	Ile	Gln	Arg	Ser	Arg	Pro	
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tca	gac	aca	att	cag	gaa	ctc	att	cag	aga	acg	aaa	aat	atg	gta	tta	1208
Ser	Asp	Thr	Ile	Gln	Glu	Leu	Ile	Gln	Arg	Thr	Lys	Asn	Met	Val	Leu	
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gag	ttg	gat	aat	ttt	caa	tac	aaa	aag	atg	aga	aaa	ctc	atg	tat	ttg	1256
Glu	Leu	Asp	Asn	Phe	Gln	Tyr	Lys	Lys	Met	Arg	Lys	Leu	Met	Tyr	Leu	
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gat	gaa	aca	gaa	gga	aaa	gaa	gga	agt	gaa	gga	aat	gga	gca	tct	gat	1304
Asp	Glu	Thr	Glu	Gly	Lys	Glu	Gly	Ser	Glu	Gly	Asn	Gly	Ala	Ser	Asp	
			330					335					340			
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Asp	Leu	Asp	Phe	His	Gly	Asn	Glu	Ala	Asn	Ser	Ile	Gly	Arg	Ala	Gly	
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gat	tct	gcg	tca	tct	cga	agt	gct	tct	ctt	act	tct	ttc	cga	tca	atg	1400
Asp	Ser	Ala	Ser	Ser	Arg	Ser	Ala	Ser	Leu	Thr	Ser	Phe	Arg	Ser	Met	
	360					365					370					
cag	agt	agt	gga	gga	gct	ggt	ctt	tta	gtg	tcc	acc	aat	acg	acg	ggt	1448
Gln	Ser	Ser	Gly	Gly	Ala	Gly	Leu	Leu	Val	Ser	Thr	Asn	Thr	Thr	Gly	
	375				380					385					390	
gct	atg	gat	aat	gtg	cat	gga	tcc	tct	gga	tac	ggt	aat	gga	agt	agt	1496
Ala	Met	Asp	Asn	Val	His	Gly	Ser	Ser	Gly	Tyr	Gly	Asn	Gly	Ser	Ser	
				395					400					405		
tcg	acg	acg	agc	tcc	gca	cgc	cgc	cgt	cct	cca	att	cct	tcg	caa	atg	1544
Ser	Thr	Thr	Ser	Ser	Ala	Arg	Arg	Arg	Pro	Pro	Ile	Pro	Ser	Gln	Met	
			410					415					420			
ctc	tct	tct	aca	tca	acg	tct	ggt	ggt	gga	act	atg	ccg	agt	cat	gga	1592
Leu	Ser	Ser	Thr	Ser	Thr	Ser	Gly	Val	Gly	Thr	Met	Pro	Ser	His	Gly	
			425				430					435				
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Ser	Val	Gly	Ala	Ser	Ile	Thr	Ala	Ile	Ala	Val	Asn	Pro	Thr	Pro	Ser	
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Pro	Ser	Glu	Pro	Ile	Pro	Thr	Ser	Gln	Pro	Thr	Ser	Lys	Ser	Glu	Ser	
	455				460					465					470	
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Ser	Ser	Ile	Leu	Glu	Thr	Ala	His	Asp	Asp	Pro	Leu	Asp	Thr	Ser	Ile	
				475					480					485		
cgt	gct	cca	gtg	aaa	gac	ttg	cat	atg	ccg	cat	cga	gca	gtc	aag	gaa	1784
Arg	Ala	Pro	Val	Lys	Asp	Leu	His	Met	Pro	His	Arg	Ala	Val	Lys	Glu	
			490					495					500			

cga ata gcc acg ttg caa aat cac aaa ttc gcg acg ctt cgt tcc cag Arg Ile Ala Thr Leu Gln Asn His Lys Phe Ala Thr Leu Arg Ser Gln 505 510 515	1832
aga ata atc aat cag gaa caa gaa gaa tat acg aaa gag aac aat atg Arg Ile Ile Asn Gln Glu Gln Glu Glu Tyr Thr Lys Glu Asn Asn Met 520 525 530	1880
tat gag caa atg agc aag tac aag cat cta cga caa gca cat cac aaa Tyr Glu Gln Met Ser Lys Tyr Lys His Leu Arg Gln Ala His His Lys 535 540 545 550	1928
gag ctc caa caa ttt gaa gaa cga tgt gca tta gat aga gag caa ctg Glu Leu Gln Gln Phe Glu Glu Arg Cys Ala Leu Asp Arg Glu Gln Leu 555 560 565	1976
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cgg aaa aaa gat atc gaa gat ggg gag aaa aag atg aaa aag acg aaa Arg Lys Lys Asp Ile Glu Asp Gly Glu Lys Lys Met Lys Lys Thr Lys 600 605 610	2120
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aaa gaa tac aag tat aac aag gag gca cag aaa aca cga tta cga agt Lys Glu Tyr Lys Tyr Asn Lys Glu Ala Gln Lys Thr Arg Leu Arg Ser 635 640 645	2216
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gcc gat ctg aat cga gtg aaa gat gca cgg gaa aat gat ttt gac gag Ala Asp Leu Asn Arg Val Lys Asp Ala Arg Glu Asn Asp Phe Asp Glu 665 670 675	2312
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gta aac gtg caa gaa cgc caa atg gac acg cgt cac gga tta ctg tca Val Asn Val Gln Glu Arg Gln Met Asp Thr Arg His Gly Leu Leu Ser 715 720 725	2456
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46

ggg atc gct cct ggt gtt ggg aat tca agc agt att cag atg gct atg 3224
 Gly Ile Ala Pro Gly Val Gly Asn Ser Ser Ser Ile Gln Met Ala Met
 970 975 980

tag aatgatgttg tctcttaatt ctactacact tcgggtcgtc taccaattgt 3277
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 35 40 45
 Asp Lys Lys Asn Glu Gln Thr Val Ala Ile Lys Lys Met Asn Phe Ser
 50 55 60
 Gly Lys Gln Ala Val Glu Lys Trp Asn Asp Ile Leu Lys Glu Val Ser
 65 70 75 80
 Phe Leu Asn Thr Val Val His Pro His Ile Val Asp Tyr Lys Ala Cys
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 Phe Leu Lys Asp Thr Thr Cys Trp Leu Val Met Glu Tyr Cys Ile Gly
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 Ser Ala Ala Asp Ile Val Asp Val Leu Arg Lys Gly Met Arg Glu Val
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 Glu Ile Ala Ala Ile Cys Ser Gln Thr Leu Asp Ala Leu Arg Tyr Leu
 130 135 140
 His Ser Leu Lys Arg Ile His Arg Asp Ile Lys Ala Gly Asn Ile Leu
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 165 170 175
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 180 185 190
 Pro Glu Val Ile Leu Ala Met Asp Glu Gly His Tyr Thr Asp Arg Ala
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 Asp Ile Trp Ser Leu Gly Ile Thr Cys Ile Glu Leu Ala Glu Arg Arg
 210 215 220
 Pro Pro Leu Phe Ser Met Asn Ala Met Ser Ala Leu Tyr His Ile Ala
 225 230 235 240
 Gln Asn Asp Pro Pro Thr Leu Ser Pro Ile Asp Thr Ser Glu Gln Pro
 245 250 255
 Glu Trp Ser Leu Glu Phe Val Gln Phe Ile Asp Lys Cys Leu Arg Lys

68

725 730 735
 Ile Gln His Leu Asn Glu Leu His Ala Met Lys Lys Arg His Leu Glu
 740 745 750
 Thr Gln His Glu Ala Glu Ser Ala Ser Gln Asn Glu Tyr Thr Gln Arg
 755 760 765
 Gln Gln Asp Glu Leu Arg Lys Lys His Ala Met Gln Ser Arg Gln Gln
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 Pro Arg Asp Leu Lys Ile Gln Glu Ala Gln Ile Arg Lys Gln Tyr Arg
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 Gln Val Val Lys Thr Gln Thr Arg Gln Phe Lys Leu Tyr Leu Thr Gln
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 835 840 845
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 850 855 860
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 Thr Arg Arg Ala Met Leu Glu Gln Lys Ile Ile Glu Glu Arg Glu Gln
 915 920 925
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